Washington Park Arboretum

BULLETIN

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Washington Park Arboretum

The Arboretum is a 230-acre dynamic garden of trees and shrubs, displaying internationally renowned collections of oaks, conifers, camellias, Japanese and other maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully co-exists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington Botanic Gardens and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

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The Arboretum Foundation's mission is to create and strengthen an engaged community of donors, volunteers and advocates who will promote, protect and enhance the Washington Park Arboretum for current and future generations.

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ABOVE: Frost on the red winter branches of *Viburnum opulus* 'Nanum' in the Graham Visitors Center parking lot. The image was captured by Cindy Clark, who volunteered with the UW Botanic Gardens Plant Records staff photographing the collection.

ON THE COVER: *Sequoia sempervirens* 'Henderson's Blue' in the Pinetum, to the north of the E. Lynn Street play area. This upright, shrubby cultivar of the coast redwood is prized for its powder-blue foliage. (Photo by Cindy Clark)

Dream a Little Dream

A pomegranate cultivar, *Punica granatum* 'Pleniflora', blooming in the Arboretum. (Photo by Niall Dunne)

In a favorite scene in "It's a Wonderful Life," Jimmy Stewart pulls out his trusty suitcase and eagerly studies travel brochures for exotic destinations. About this time of year, we Seattleites also start to imagine journeys to sunny locales around the globe. So it seems fitting that at February's Northwest Flower & Garden Festival, the Arboretum Foundation will help you cast off the cloak of winter and revel in images of the Mediterranean!

Our 2019 display garden, "Under the Mediterranean Sun," pays homage to the elegant courtyards found throughout the region. This welcoming garden will be filled with iconic Mediterranean flowers, foliage and fruits, as well as gently cascading water. In studying the Arboretum's connection to the region, we discovered that 17 of the 22 countries that touch the Mediterranean Sea are represented in our plant collection. A number of these specimens have been present for decades. For instance, in the main Mediterranean collection, just to the west of the Sorbus collection, you'll find cork oak, bay laurel and green olive trees dating to the 1950s.

For a preview of the garden, we hope you will also join us for the Opening Night Party—"Mediterranean Dreams"—on February 19. There are some fun surprises planned for the evening, and we are especially honored to recognize the many contributions of the Arboretum Foundation units during the festivities. These groups of dedicated volunteers have worked together for decades, providing just about every kind of support imaginable for the Arboretum. It's been a fascinating process to collect some of their stories, and we look forward to sharing some highlights with you.

While we dream of the Mediterranean, together we will be working to support dreams a little closer to home—providing programs to encourage children to understand and commune with the natural world and fostering a world-class arboretum that is the pride of the Pacific Northwest.

Come journey with us!

Jane Stonecipher
Interim Executive Director, Arboretum Foundation

Four new Yoshino cherry trees have been planted along Azalea Way.

New Plantings in the Arboretum

THE YEAR IN REVIEW

Text By Ray Larson
Photos By Niall Dunne

In the five years that I have been curator, 2018 was the most active in terms of new plantings in the Arboretum. A majority of these centered around the new Arboretum Loop Trail and adjacent areas, many of which were enhanced, rehabilitated and augmented. We also made improvements to a few other collection and garden areas with individual and smaller plantings. Following is a summary of some of the more noticeable new plantings you might encounter during your next visit.

TOP: The new planting bed at the main entrance to the Arboretum.
CENTER: Two new mountain peppers, from Australia, were planted in the entrance bed.
BOTTOM: More than 80 new azaleas were planted at the south end of Azalea Way. Other additions include disease-resistant dogwood cultivars.

Arboretum Entrance

Perhaps the most obvious major planting occurred in March, just north of the Graham Visitors Center, with the creation of a new, large bed at the southeast corner of the intersection of Arboretum Drive and Foster Island Road. This intersection changed a lot as part of the Loop Trail construction—with the addition of new curbs and crosswalks—and we wanted to create a fitting entrance to the Arboretum at its north end. The new planting was also intended to alleviate some of the soil compaction and social trails that had developed on the east side of Arboretum Drive during trail construction. What's more, we wanted to encourage pedestrians to use the new gravel trail on the west side of the Drive to connect from the lower parking lots to the Visitors Center—rather than walk in the road.

The plantings were designed to provide lots of floral and textural interest, and to preview the collections farther along Arboretum Drive and Azalea Way. To that end, we added two *Rhododendron* cultivars—'Teddy Bear' and 'Yaku Sunrise'—along with *Acer shirasawanum* 'Jordan', a golden-foliaged selection of the full moon maple from Japan. At the south edge of the bed, we added fragrant plants that can handle drier conditions, including the November-blooming, bamboo-leaved false-holly (*Osmanthus heterophyllus* 'Sasaba') and the winter-blooming *Sarcococca ruscifolia*. Both provide attractive evergreen foliage and pleasing scents. To help fill in the background, we planted *Camellia japonica* 'Showa-no-hikari', an unusual Japanese camellia that produces large, pink-and-white single flowers in March.

Two specimens of mountain pepper—*Tasmannia (Drimys) lanceolata*—flank the entry sign. Native to woodlands and cool temperate rainforests in southeastern Australia, these shrubs flower in April and May but are grown primarily for their red stems and narrow, dark evergreen foliage. Adjacent to the parking lot, we planted several dwarf Hiba cedars (*Thujopsis dolabrata* 'Nana'), which—with their wide, soft, textural foliage—look like a cross between a

western red cedar and a juniper. Finally, we added sword ferns along the edges of the bed to provide some Northwest flavor—and also because they are so adaptable.

Azalea Way South Entry

Another highly noticeable project was the recent renovation of a large bed at the south end of Azalea Way, where the historic promenade intersects with the Loop Trail by the newly daylighted Arboretum Creek. This area was regraded during trail construction in order to merge the two pathways. It is very visible, not just from the trail intersection, but also from the expanded Birch Parking Lot nearby. Flanked by a very large river birch (*Betula nigra*), the area is now one of the busier entrances to the Arboretum.

Once trail construction was finished and native plantings were installed along the creek banks, the intersection of Azalea Way and the trail was ready for a major refresh. A generous gift from Arboretum Foundation Unit 26, based on Bainbridge Island, made it possible. In September, we decompacted the ground, which had been damaged by construction staging, and we brought in new soil to create a planting berm. The berm will help with drainage and plant establishment, while subtly framing this new entrance to Azalea Way.

We planted more than 80 azaleas—comprising seven varieties. I wanted to honor the original design intent of Azalea Way by adding a mix of colorful and fragrant deciduous azaleas with a long bloom sequence. I was also interested in using varieties that weren't already in the collection. Other plants in the bed include some young dogwood trees.

The original Olmsted plan for Azalea Way called for a foreground of azaleas along the path, with other spring-flowering trees providing the mid-ground to a backdrop of large evergreen conifers. The initial planting included dozens of flowering cherries, but also numerous magnolias, dogwoods, and other small trees. Azalea Way has lost many of its eastern and native Pacific dogwoods since the devastating arrival of anthracnose in the 1970s, so I chose two new hybrids between the Pacific dogwood (*Cornus nuttallii*) and the anthracnose-resistant Kousa dogwood (*Cornus kousa*) to try to bring back some of the original Olmsted design intent. We have been pleased with an earlier planting (in 2016) of one of the cultivars, *Cornus* STARLIGHT®, and I was eager to add more of this and similar hybrids that have shown superior resistance to the fungus.

We also planted the very unusual *Huodendron tibeticum*, an evergreen member of the styrax family (Styracaceae) that features peeling, ornamental bark once it matures. This is the first time we've grown the species in the Arboretum; our specimen was donated by Portland's Hoyt Arboretum last year. We also planted a large *Rhododendron simsii* that plantsman Dan Hinkley donated earlier this year. It was a plant that Dan grew from seed he collected in China. The white to dark-red flowering species is a parent of many

Two new *Azara microphylla* have been added to the Loop Trail planting next to the Stone Cottage and will provide a fragrant flower show in winter.

of the azalea hybrids that have been used in cultivar development over the years.

It will be exciting to see how this bed matures and develops in the coming years.

Loop Trail: Stone Cottage Section

In January, we installed a new planting along the Loop Trail just northeast of the Stone Cottage. This area already featured two sizable boxleaf azara (*Azara microphylla*) trees but was otherwise largely denuded, aside from a few sparse older rhododendron cultivars and an Oregon myrtle (*Umbellularia californica*). To the east there is a very large Chilean myrtle (*Luma apiculata*), likely planted decades ago. Given the three sizable Chilean specimens and the area's proximity to the Gateway to Chile, I designed a planting around this theme.

We installed several new *Luma apiculata*, which is a large evergreen shrub with orange-brown bark that grows to up to 20 feet tall and produces late summer flowers, followed by black berries. These specimens will provide a screen of the neighbor's fence and a backdrop to other plantings. Also planted were two new *Azara microphylla* for additional height. In addition, we planted a number of Chilean hard fern, *Blechnum chilense* (which will form robust clumps of evergreen foliage with new growth of reddish bronze), as well as *Gaultheria mucronata* (formerly *Pernettya*) that will provide winter interest with its pink berries and small evergreen foliage.

We added two small Chilean fire trees (*Embothrium coccineum*) to provide brilliant, orange-red flower color in late spring—though this species can be finicky to establish. We also planted *Eucryphia* × *nymansensis* 'Mt. Usher', a tall, multi-stemmed shrub that's sadly underused in horticulture. A hybrid of two hardy Chilean species, it puts on a stunning show of large, fragrant, white flowers in August.

Loop Trail: Pacific Connections Section

Farther north along the trail, on the other side of Arboretum Drive, we restored a section of the Gateway to Chile. Here we added additional *Blechnum chilense* and *Gunnera magellanica*, a diminutive relative of the much larger Chilean rhubarb (*Gunnera tinctoria*) that acts as a deciduous groundcover. We also installed another *Eucryphia* × *nymansensis* 'Mt. Usher'.

Along the trail at the west edge of the Cascadia Forest, we restored a slope with drought-tolerant native shrubs, including red-flowering currant (*Ribes sanguineum*), oceanspray (*Holodiscus discolor*), and a selection of *Arctostaphylos* × *media*—a neat, compact, naturally occurring hybrid form of manzanita—called 'Martha Ewan'.

TOP: White Chilean myrtle *(Luma chequen)* flanked by two Chilean hard ferns *(Blechnum chilense)*, along the Loop Trail in the future Chilean Forest. **BOTTOM:** A young monkey puzzle tree planted on the slope beside the Loop Trail.

Berberis (*Mahonia*) *eurybracteata* planted along the Loop Trail in the future China Forest.

Down the hill from Cascadia, we installed additional Chilean species at the edge of the future Chilean Forest. Among these were more *Blechnum chilense*, along with Chilean lantern tree (*Crinodendron hookerianum*) and winter's bark (*Drimys winteri* var. *chilensis*)—all planted on the western slope down off the trail. On the east side of the trail, three monkey puzzle (*Araucaria araucana*) were planted, and we expect them to do better in this location—with its well-drained soils—than the trees planted in the Gateway to Chile in 2010. We also planted another *Azara microphylla*, along with two other members of the genus: toothed azara (*Azara dentata*) and lanceleaf azara (*Azara lanceolata*), the latter of which was grown from seed collected in the wild and donated to us by Dan Hinkley. Fragrant like their cousin *Azara microphylla* (which is a star of our Witt Winter Garden), *A. dentata* and *A. lanceolata* have much larger leaves and bigger yellow flowers.

In the scree slope along this section of trail, we added Chilean rhubarb, *Blechnum chilense* and several relatively uncommon species. These species include boldo (*Peumus boldus*), a broadleaf evergreen with medium-sized, rounded leaves; maqui, or Chilean wineberry (*Aristotelia chilensis*), a small evergreen tree with handsome, red leaf stalks and purple-black berries; *Myrceugenia chrysocarpa*, a smaller-growing, evergreen myrtle family member; and prickly myrtle (*Rhaphithamnus spinosus*), a broadleaf evergreen with spiny stems and purple berries.

Farther north and downhill along the trail, we planted both sides with species native to Emei Shan (Mount Emei) to provide an early look at the future China Forest planned for this area. Several *Rhododendron* species were added, from the relatively small statured *R. williamsianum* to the almost tree-like *R. calophytum*. We interspersed the rhododendrons with *Sorbus setschwanensis*, *Tsuga dumosa*, *Acer davidii* and *Schefflera delavayi*, as well as two *Mahonia* species native to the mountain: *Mahonia gracilipes* and *Berberis* (*Mahonia*) *eurybracteata*. In the wild, these two mahonias hybridize naturally, and we are growing several seedlings of the hybrid in our nursery to plant out in the coming years. The seedlings came to us courtesy of the Elisabeth Miller Botanical Garden, and they display an interesting mix of the characteristics from both species.

LEFT: New strawberry tree cultivars (*Arbutus unedo* 'Compacta') will help screen the railing on the sidewalk near the Boyer Street entrance.
RIGHT: New plantings of winter-blooming *Grevillea victoriae* have been added to the Australia Entry Garden.

In all, 100 plants representing over 45 species were planted along this stretch of the trail. Considering Emei Shan features over 3000 species, we have only scratched the surface of the floral richness possible in the future forest planting.

Lake Washington Boulevard Corridor

In recent months, we began a major refresh of the Viburnum Collection along the Loop Trail, and we expect to add many new plantings in this area in the coming year. It's part of a larger restoration of the Lake Washington Boulevard corridor, made possible by a generous private gift to the Arboretum Foundation. The project will include the installation of new native and collection plantings along Arboretum Creek, on the west side of the Boulevard, as well as new plantings in more areas along the Loop Trail—including on the eastern slope of Yew Hill and in the Oak Collection.

At the new Boyer Street entrance to the Loop Trail, we planted several *Arbutus unedo* 'Compacta' to help screen the rather stark railing along the sidewalk leading to the bridge over Arboretum Creek. This smaller variety of the strawberry tree is a tough evergreen with November flowers and strawberry-like fruits that are at their showiest in the fall. Here also we planted three California lilac cultivars (*Ceanothus* 'Midnight Magic') to provide a lower screen closer to the road and some vivid bloom in late spring.

Additional plantings in this area include red-flowering currant and a variety of Siebold's crabapple (*Malus sieboldii* 'Fuji'). The effort to brighten up some of the plantings along Lake Washington Boulevard will continue in the years to come.

Pacific Connections Garden

In the Pacific Connections Garden, we added new plantings to the New Zealand and Australian Entry Gardens. In New Zealand, we are trialing *Pittosporum crassicaule*, a distinctly small-leaved and finely textured broadleaf evergreen, and we added additional examples of tauhinu (*Ozothamnus leptophyllus*) and the daisy bush *Olearia* × *haastii*. The latter will thrive in the drier soils of the entry garden and offer attractive foliage and summer flowers.

In Australia, we have refreshed the garden with additional plantings of royal grevillea (*Grevillea victoriae*), tonghi bottlebrush (*Callistemon subulatus*), and leatherwood (*Eucryphia lucida*). Because the already established *Eucalyptus* species in the garden were rather severely leaning toward available afternoon sun, we opened up some space to the east to give the plantings more light earlier in the day. We removed a relatively young western red cedar and replaced it with a young alpine snow gum (*Eucalyptus pauciflora* ssp. *niphophila*) and a huon pine (*Lagarostrobus franklinii*)—a Tasmanian conifer that can live to great age. A podocarp rather than a true pine, *L. franklinii* tolerates

having its feet wet and is planted near a seasonally wet area along the Broadmoor fence. We are also trialing the small-leaved evergreen shrub *Baeckea gunniana* here to see if it would be a good choice for this tough spot. By the vehicle turnaround, we planted a candlebark (*Eucalyptus rubida*), and we'll continue to enhance this area with additional Australian plants in the coming years.

In a section of the future China Forest that faces onto Lake Washington Boulevard, we planted trees, shrubs and vines to screen a large, concrete retaining wall, built to support the Loop Trail. Look for new specimens of *Stachyurus*, birchleaf viburnum (*Viburnum betulifolium*), *Ilex* aff. *fargesii*, and climbing hydrangea (*Hydrangea anomala*). Where the Gateway to Chile begins at the south end of the wall, we added the conifers Prince Albert yew (*Saxegothaea conspicua*) and willow-leaf podocarp (*Podocarpus salignus*). Farther north on the trail—where it intersects with the service road going down the Boulevard—additional Chinese species such as *Ilex ciliospinosa*, *Tetracentron sinense*, *Clethra fargesii*, and various rhododendrons are among the new plants added.

New Cherries, Rhodies and More

Other notable changes in the Arboretum include plantings at the East Newton Street Entrance, which connects the south Pinetum with the Montlake neighborhood to the west. Plantings include the compact oakleaf hydrangea selection *Hydrangea quercifolia* 'Pee Wee', along with the false holly *Osmanthus heterophyllus* 'Purpureus', two varieties of Japanese cedar (*Cryptomeria japonica*), and a *Chamaecyparis obtusa* 'Nana Lutea'. We are also using this sunny spot to try out the Catalina ironwood, *Lyonothamnus floribundus* ssp. *asplenifolius*. Endemic to the Channel Islands of California, this unusual broadleaf evergreen has a narrow habit and peeling bark with age. It requires good drainage and light exposure.

In the Puget Sound Rhododendron Hybridizers Garden, we added new cultivars from Frank Fujioka, a prolific hybridizer of the last 30 years. We hope to continue to add many of the outstanding hybrids developed by local breeders in the next few years. To the east, in the Asiatic maple section, we planted a new *Acer japonicum* 'Aconitifolium' as part of an example bed begun last year. In my opinion, the cultivar offers one of the best coloring and longest-lasting foliar displays of any small tree.

Along Azalea Way, four new Yoshino cherries (*Prunus* × *yedoensis*) were planted, bringing the story of their provenance full circle. The new plants were propagated from cuttings taken from trees on the University of Washington's Liberal Arts Quadrangle several years ago. The Quadrangle trees were originally moved to the campus from the Arboretum in 1962, having been displaced by the construction of the SR 520 highway. The new trees were part of a batch being grown for the UW at a local nursery and that had gotten too big to be held there any longer. Several were planted on campus, but four were donated to the Arboretum. The original trees, planted just east of Montlake Boulevard East—in the old "Canal Reserve" section of the Arboretum—predate the Olmsted Brothers plan of 1936. It is likely that these trees were planted in 1935 under the curatorship of Frederick Leissler, assistant director of the Arboretum, before permanent accession and planting records were kept in the Arboretum. It is fitting that their progeny are back in the Arboretum once more.

It is an exciting time in the Arboretum. We are grateful to the many donations of plants from local collectors and growers and for support from friends like you. We hope that you will come and enjoy the new additions, and we look forward to watching them grow and mature. Thank you, as always, for your continued support of the Arboretum. ~

Ray Larson is curator of Living Collections at the University of Washington Botanic Gardens and curator of the Otis Douglas Hyde Herbarium, the Arboretum's herbarium housed in the Center for Urban Horticulture.

Camellia japonica 'Dewa-tairin'

By Daniel Mount

More than 200 species of *Camellia* live—with a concentrated and continuous distribution—in the wilds of Southeast Asia. But the camellia has become a global garden plant and, fortunately for us, many camellias seem to love our maritime Pacific Northwest climate.

At present, Washington Park Arboretum is home to 371 individual plants representing 211 different species, subspecies and cultivated varieties. *Camellia sasanqua* and its hybrids, *C.* × *williamsii* hybrids, *C. reticulata* hybrids, and even *C. sinensis* (the species whose leaves and buds are used to produce tea) are well represented here. However, the bulk of the collection consists of cultivars of the Japanese camellia (*C. japonica*).

My favorite among the latter is a pink-blossomed cultivar called 'Dewa-tairin', which translates to the "large-flowered-one from Dewa," the old name for a province in northern Japan comprised of modern-day Akita Prefecture and Yamagata Prefecture. 'Dewa-tairin' was first recorded in 1695 in Japan and was one of the first camellias to enter European gardens.

Graham Legacy

The Arboretum has three specimens of 'Dewa-tairin' dating to the 1940s in its main Camellia Collection. Two of these came from the home garden of none other than Donald G. Graham, whose legacy is commemorated in the name of our Graham Visitors Center. (The third came from Endre Ostbo, a prominent

early rhododendron hybridizer, who also has a memorial in the Arboretum.) One of the Graham specimens, dating to 1942, grows at the north end of the collection, close to stairs that descend from Arboretum Drive into Rhododendron Glen. The other, accessioned in 1947, is at the south end of the main collection, just north of the New Zealand Forest.

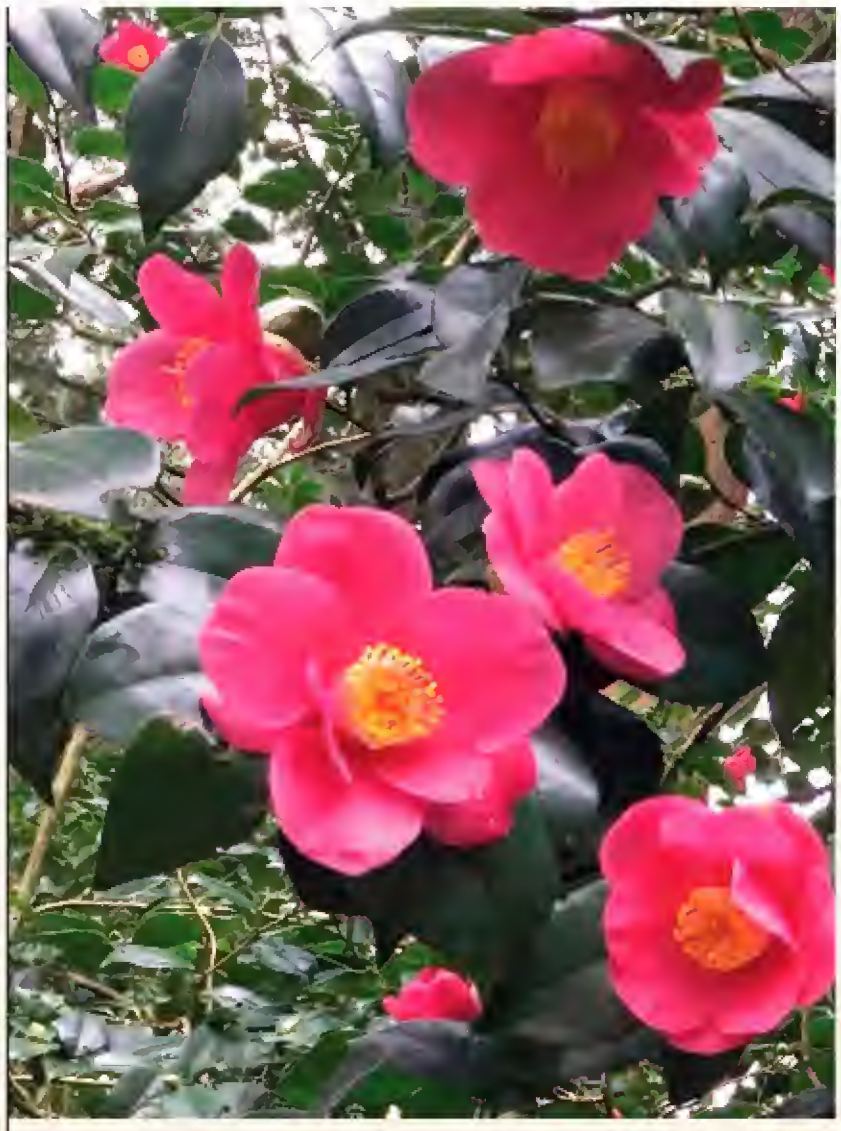
Graham was one of the founding members of the Arboretum Foundation and lived in neighboring Broadmoor. He built a house there in 1931 and immediately began developing a garden. His son, Donald Graham, Jr., recalls his father as having "a scholarly, collector's interest" in plants, in particular rhododendrons. But, I imagine, like the rest of the gardening community in the U.S., he got caught up in the camellia craze that swept the country shortly after World War II.

It was during this time that the Arboretum's camellia collection burgeoned. No less than 278 camellias were planted in 1945, with the support of a local garden group called, simply, the "Amateur Garden Club." A second mass planting of 200 specimens took place in 1949. Today, the many large, magnificent camellias we have are a testament to that early enthusiasm and the endeavors of many volunteers and staff.

Samurai Connection

'Dewa-tairin' certainly stands out among them. It is a big, bold bush (the Arboretum specimens are about 10 feet high by 12 feet wide) and one of the first japonicas to bloom in spring. The deep, rose-pink flowers are single (that is, they have a single count of petals) and get up to six inches wide (though five inches is nearer normal size), and each one is centered with more than 100 yellow stamens. The flowers are at once gaudy, almost tropical in appeal, and yet elegant—making them a rare treat in the late-winter garden.

Despite having a name linking it to a province in northern Japan, 'Dewa-tairin' is part of a group of camellias known as the "Higos" associated with the southern province of Higo, now called Kumamoto Prefecture. Famous for their flat, simple, large-petalled flowers with multiple (up to 250) showy stamens, Higos have a complex and ancient



The stunning, five- to six-inch-wide flowers of 'Dewa-tairin' appear in February in the Arboretum's main Camellia Collection.

genetic history. They were developed millennia ago through the hybridization of different forms of *C. japonica*, as well as the little known *C. rusticana*, and possibly even other species.

Because they bloom beautifully in cold winters, Higo camellias were beloved by the samurai, who saw them as symbols of steadfastness and bravery. They planted Higos by the graves of deceased samurai as reminders of the warriors' courage. After the fall of the samurai class in the 19th century, their popularity faded, and many cultivars were lost. However, a new surge in interest, especially in Japan and Italy, is bringing many old Higo camellias back into the public eye.

Once highly regarded among Higo camellias, 'Dewa-tairin' is "no longer ranked among the elite," according to camellia expert Stirling Macoboy in his book "The Illustrated Encyclopedia of Camellias" (Timber Press, 1998). That's because the plant can sometimes produce flared, petal-like stamens in its flowers—and some consider this a flaw. Yet, as

part of our collection, 'Dewa-tairin' is of great value.

In 2004, the "American Camellia Yearbook" recognized the Arboretum's collection as one of the best and oldest collections of vintage camellias in the U.S. Though many of these vintage cultivars have proven to be garden-worthy, most are no longer in commercial production. 'Dewa-tairin' seems to be one of those—even though it received the Royal Horticultural Society Award of Garden Merit in 1953 under one of it synonyms, 'Hatsu-Sakura', meaning "first cherry blossom."

'Dewa-tairin' can start blooming as early as February here, preceding most the flowering cherries in the park. If you can't take a tropical vacation at that time of year, stop by the Arboretum and enjoy some big, beautiful, tropical looking flowers in our important and venerable Camellia Collection.

Daniel Mount is an estate gardener, garden writer, and member of the "Bulletin" Editorial Board. He lives on a small farm in the Snoqualmie Valley. Read more of his reflections on plants and gardening at www.mountgardens.com.

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Putting in a new paved path at the Miller Garden became a valuable lesson in scale and proportion.

ELEMENTS OF

DESIGN

Scale and Proportion:

Sizing up the Garden

By Richie Steffen

Last year, we added a new paved path at the Miller Botanical Garden to improve access to the main house by wheelchair. What started out as a simple project soon turned into something much more involved—one that provided a valuable lesson in design.

Our first thought was to create a wider, more gently sloping pathway from the end of the house to the French doors that lead into the living room. However, though functional, a lone path cut through the existing space clearly would not have looked right. This simplistic approach did not consider how the new addition would relate to the proportions of the surrounding house and garden, or to the human scale of the visitors and staff who would be using both.

In landscape design, proportion and scale are defined, respectively, as the relationship of the plants and landscape elements to the buildings and encompassing area, and the size (and visual weight) of these elements compared to that of the human body. Fortunately, we realized the issues with the walkway early in the design phase and started to think in a broader sense.

This eventually led us to add a stone terrace, additional walkways and a staircase to transition

A grove of large *Gunnera tinctoria*, at the Logan Botanic Garden in Scotland, demonstrates how scale can be manipulated.

In the Miller Garden, the finely-textured *Podocarpus* 'County Park Fire' in the background makes the larger-leaved *Yucca recurvifolia* stand out and look closer.

and integrate the new structures into the garden. Scaling up the design nearly quadrupled the size of the project (and likewise the budget!), but the end result was a hardscape that had a feel of belonging and fit comfortably with the house and the mature landscape.

Proportionate Landscapes

Scale and proportion can be difficult to control in the garden. In older landscapes, they become an imperfect balance of compromises. You will always have some features that are too big or too small in the garden, but the design goal is to have a majority of them near just the right size.

The challenge with scale and proportion is that plants grow, so your context is always changing. The rhododendron of yesterday's foundation planting is tomorrow's multi-stemmed small tree that is way too close to the house. You must be able to take a step back from the garden and look at it as a whole—then see what works, and what does not, and make those choices about what is too precious to cut down and what must be removed.

One of the hardest lessons to learn during my years at the Miller Garden has been that sometimes something choice needs to go! When you are ducking and weaving between branches along a trail or walking along the edge of the opposite side of a path to accommodate spreading branches, it may be time to consider that these plants are now out of place.

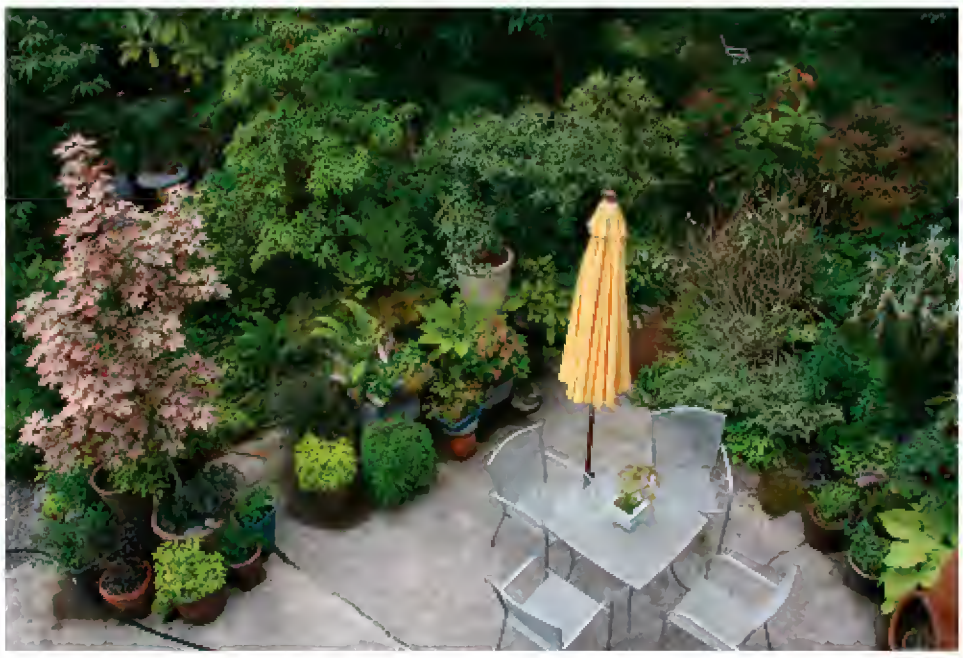
The challenges of scale and proportion will change from neighborhood to neighborhood, and from new gardens to mature gardens. Today's trend of a large house on a small piece of land leaves little space for the context of the surrounding landscape to relate to the structures. The house can appear domineering to the location, giving few options to make the proportions feel right.

The use of columnar trees and narrow, upright growing shrubs, offset with more rounded plants where space permits, can help soften an imposing structure. There are even narrow, vase-shaped trees that can fit into tight spaces, yet help provide the comfortable feel of a broad overhead canopy. You must be clever in these situations. Planters placed on pedestals, along with pruning and shaping, can be used to create the illusion of height and fill.

Manipulating Scale

Clever thinking makes scale and proportion as fun and interesting in the garden as more obvious landscape principles such as color or texture. One of the most dramatic experiences I have had with scale was on a visit to the Logan Botanic Garden in southwest Scotland, where I got to explore a tunnel carved through a fantastic, three-quarter-acre grove of gunnera. The enormous leaves of the gunnera loomed above my head on eight- to 10-foot-tall stalks with broad leaves stretching six to seven feet across. The

In my old garden, a lone stewartia to the left of the patio is proportionate to its surroundings.



On my much larger new property. I'd need to plant a grove of stewartia to achieve a noticeable impact.

change in scale made me feel like a tiny garden elf dashing through the perennial border.

Though we may not be able to replicate a gunnera grove in the home garden, we can use large foliage to skew the scale. Playing with foliage size can make spaces feel more intimate or create the feeling of distance. Bigger leaves make you feel like the plant is closer than it is, and smaller leaves register in our minds as farther away.

We can also manipulate the visual weight of plantings. We may need height and width in a location, but not want the planting to feel overwhelming. Plants with finely-textured foliage and open growth habits—as well as some plants with variegated leaves—can fill a space, yet provide an airy appearance by having less visual weight than many plants of similar size. Think about how you feel viewing a mimosa, *Albizia julibrissin*, with its fine, delicate foliage and broad open habit, versus an English laurel, *Prunus laurocerasus*, of the same size. The laurel with its large, dense, evergreen foliage feels like a lead balloon compared to the dainty mimosa. Using scale and proportion to enhance harmony and contrast can boost dramatic impact, even in small spaces.

Constantly Shifting Dynamics

Recently, I moved my garden from a quarter-acre city lot to a new 10-acre property. This has put scale and proportion to the forefront of my design development. As I look at all the plants I moved to this new property, it has become clear that grander thoughts are in order for this enormous space. Where I once thought it would always be nice to have a lovely stewartia tree in the garden, I now see that it would be much more appropriate to add a grove of stewartias to have a noticeable impact.

This is what I enjoy the most about scale and proportion—the ever-changing dynamics. These are not static design principles, but rather the opposite, and they keep the garden fresh and the gardener's mind sharp.

Richie Steffen is the executive director of the Elisabeth C. Miller Botanical Garden (www.millergarden.org) in Seattle, Washington. He is also a member of the "Bulletin" Editorial Board.

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Tamamono Shrubs
Creating a Serene Foreground in the Japanese Garden

By Corinne Kennedy

In Japanese-style gardens, foreground shrubs are often pruned into a sculptural, semi-spherical shape known as *tamamono* (also written tama-mono). Evergreen azaleas (*Rhododendron* species and cultivars)—especially late-blooming Satsuki cultivars—are the plants most commonly used. However, any readily prunable, small-leaved evergreen shrub with a naturally dense, mounding habit is appropriate.

The desired form is a portion of a sphere, rather than the ball-like shape used in Western-style topiary. It should be at least twice as wide as tall, with the widest part touching the ground. Plants pruned in this shape appear seated in the earth, as if they were deeply buried stones. In the Seattle Japanese Garden, many *tamamono* plants are foreground shrubs, growing close to the central pond and the path that winds around it. Their spreading, mounded forms contrast with both the garden's vertical elements—upright-growing trees and shrubs—and the low, horizontal dimension of the ground plane.

Repeated, the *tamamono* form contributes mass, stability, and enduring shades of green to Japanese gardens. Evergreen azaleas offer the added bonus of brighter colors when they flower in spring. Some evergreen types also have foliage that develops attractive fall color. The individual characteristics of *tamamono* plants, however, are relatively unimportant. Sculptural in form, anchored in the earth, and repeated throughout the garden, they alter our perception of it. They become the "supporting cast" to the more

The north end of the pond at the Seattle Japanese Garden, with *tamamono* shrubs in the foreground of the plantings. (Photo by Aurora Santiago)

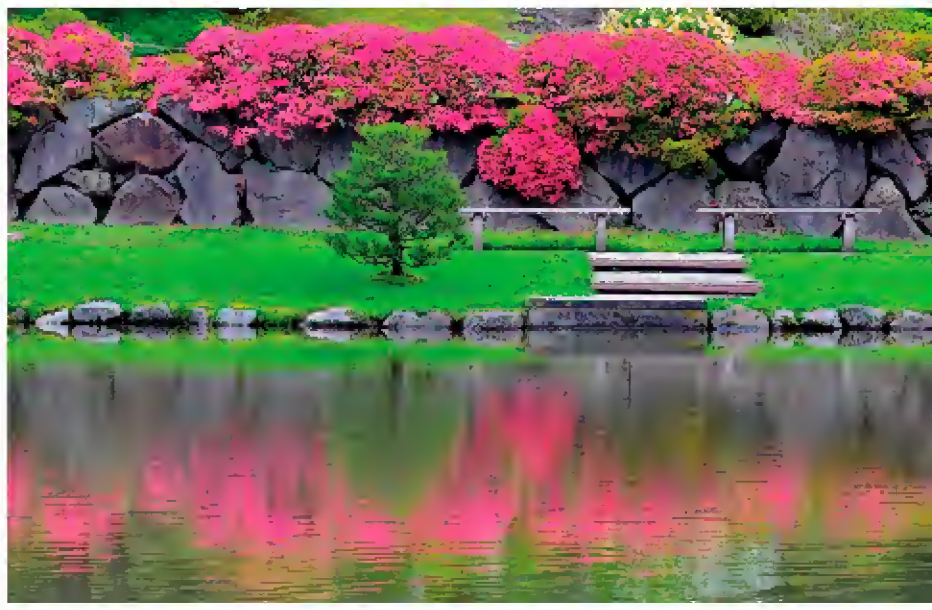
BOTTOM: The *o-karikomi* "wave" of connected *tamamono* Arnold azaleas in bloom above the rock wall at the north end of the pond. (Photo by Aurora Santiago)

spectacular trees and shrubs, such as Japanese maples, that draw our attention and admiration. The garden becomes a coherent whole, rather than simply a collection of plants, and our experience of it is one of simplicity and tranquility.

Selecting Plants for *Tamamono*

A plant chosen for *tamamono* must take well to pruning—usually shearing, known as *karikomi*, which results in a dense form with a well-defined outline.[1] Specialized manual hedge shears are used for this. Alternatively, gardeners can use bypass pruners to make individual cuts, creating a more natural-looking shape. This type of pruning also maintains the health and prolongs the life of the plant, but compared to shearing is extremely time consuming.

Although many types of evergreen azaleas are used for *tamamono*, Satsuki azaleas are especially appropriate because of their low, dense growth habit, adaptability to shearing, attractive flowers,



and finely textured foliage. They aren't cold-hardy enough for some regions of the country but—lucky for us—grow well in the Pacific Northwest.

Other suitable broadleaf evergreen shrubs abound, but most lack the beautiful flowers of azaleas. Japanese holly (*Ilex crenata*) has a stiffer branching habit than most azaleas, however sheared plants exhibit the required form. More than 100 cultivars are available, including the compact dwarf *I. crenata* 'Helleri', which is particularly appropriate. Korean boxwood (*Buxus microphylla* var. *koreana*) is another small-leaved evergreen that can be easily maintained as a *tamamono* shrub. Like Japanese holly and most evergreen azaleas, it's adaptable to sun or partial shade.

Two conifers also work well: Japanese yew (*Taxus cuspidata*) and mugo pine (*Pinus mugo*). Unlike most conifers, yews respond well to shearing, and Japanese yew is no exception. Many dwarf forms of mugo pine have low, mounding growth habits and can be successfully shaped using pruners, rather than shears. The *tamamono* forms of conifers are a little looser and less formal than those of broadleaf evergreens.

Making Waves

Plants should be kept at a height that relates to the human body—somewhere between waist and mid-shin. When it comes to pruning, ease of maintenance is important. Gardeners will have difficulty creating and sustaining the correct shape if plants are kept very short. It's also important to preserve the *tamamono* shrub's relationship to the garden as a whole—as a kind of low, middle layer, but higher up than most groundcovers. Plants that grow too tall will block views of other plants or garden elements. In the Seattle Japanese Garden, for instance, views of the central pond would be impeded.

Tamamono plants should be separate from each other, but if they start to grow together, it may be possible to create a sheared wavelike form known as *o-karikomi*.[2] These "waves" are simply long lines of connected *tamamono* shrubs. If possible, the shrubs should be planted in a zig-zag pattern, rather than in a straight line.

The semi-deciduous azalea *Rhododendron mariesii* pruned in the *tamamono* style. (Photo by Aleksandra Monk)

In Japanese-style gardens, straight lines are considered appropriate for structures, including fences and walls, but not for the placement of plants, which should have a more natural appearance. Each *o-karikomi* "wave" should consist of a single species or cultivar. Different plants may be used to create separate, parallel *o-karikomi* waves, evoking a series of low mountain ranges or waves breaking onshore.

The Seattle Japanese Garden has many azaleas and other evergreen shrubs pruned in the *tamamono* form, but most do not blend into *o-karikomi* waves. The best example of the latter is the planting of Arnold azaleas (*Rhododendron* 'Obtusum Arnoldianum') on top of the long wall at the north end of the garden. The wall is linear, so the wave of azaleas, uncharacteristically, forms a straight line above it.

Staff gardeners devote many hours to pruning evergreen shrubs into the *tamamono* form—creating and maintaining the simple shapes that contribute so much to the harmony and serenity of the Seattle Japanese Garden.

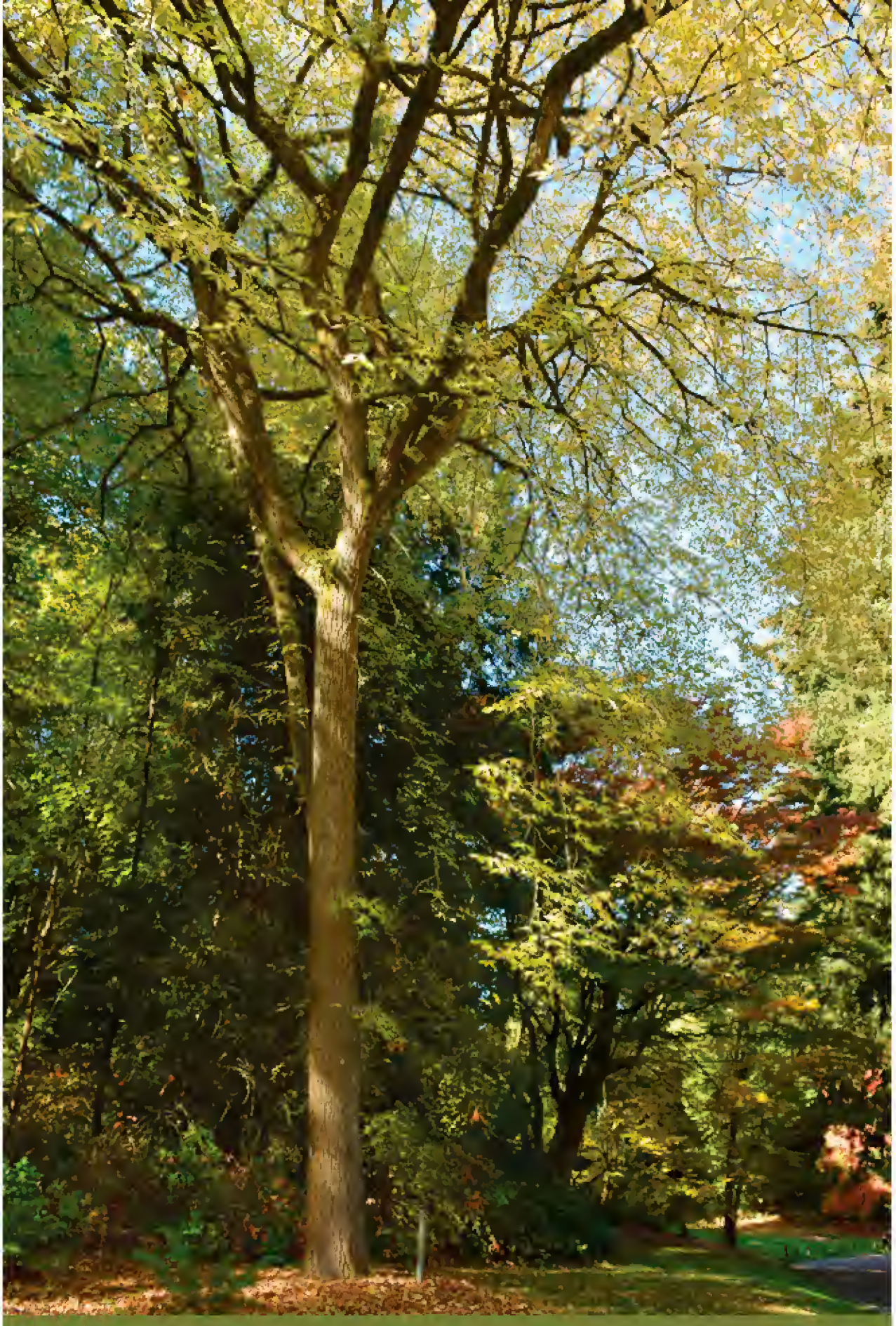
Adapted from an article first published on the Japanese Garden blog: www.seattlejapanesegarden.org/blog.

Notes

1 For detailed information on karikomi pruning, see the June 2016 blog article by Peter Putnicki, Senior Gardener of the Seattle Japanese Garden: "Karikomi, The Art of Shearing Back," www.seattlejapanesegarden.org/blog/2016/06/15/karikomi-the-art-of-shearing-back?rq=karikomi.

2 "Sukiya Living: The Journal of Japanese Gardening" has many useful articles on *tamamono* and *o-karikomi* forms and pruning techniques. You can peruse issues of the magazine at the Elisabeth C. Miller Library, in Seattle (www.millerlibrary.org).

Corinne Kennedy is a Seattle Japanese Garden guide, frequent contributor to the garden's blog, and retired garden designer.



The Arboretum's Washington Elm, photographed in fall. (Photo by Niall Dunne)

The Arboretum's George Washington Elm

By Catherine Nelson

The Washington Park Arboretum has two large American elms (*Ulmus americana*) in its collection, one of which has historic significance. A colleague's curiosity about the history of this "George Washington elm" prompted me to do some research. You'll find it, marked with a plaque, on the west side of Arboretum Drive—just about a 100-yard walk south from the Graham Visitors Center.

Although no actual records of the event exist, historians generally agree that George Washington took command of the Continental Army in Massachusetts, in the summer of 1775, on the site of Cambridge Common, which was surrounded by several American elms. Over time, one of these elms was anointed the George Washington Elm—also the "patriarch tree"—and became a potent symbol of this historic event.

Nearly 150 years later, in 1923, the George Washington Elm fell, finally succumbing to old age and disease. Cambridge Parks Department records noted the tree's decaying limbs were a safety concern for some time before it fell. Upon the tree's demise, it was measured and dated, and approximately 1000 cuttings were taken, propagated and distributed among each of the states so that the historic tree would live on in parks and on capitol grounds all around the country.

Debunking the Myth

The Arboretum's tree is *not* the product of one of these cuttings—but more on that soon. Not long after the death of the Washington Elm, something of a private cottage industry sprouted up around its remains, or alleged remains. I found a wonderful article on the subject in a 1931 issue of the Arnold

Arboretum "Bulletin." Author J.G. Jack wanted to set the record straight about the Washington Elm. He was incensed that nurseries were selling American elms that they claimed were cuttings made directly from the original Washington Elm—even though the tree had died years before. Moreover, the nurseries provided no proof that their trees bore any familial relation whatsoever to the original.

Jack also discussed the false history of the tree as told in the "Dorothy Dudley Diary," a literary fraud published and widely read during the first centennial of the American Revolution, in 1875. The "Diary" purports to be an eyewitness account of Washington taking command on the Cambridge Common and waxes poetic about the "wide spreading branches of the Patriarch tree," described as "a grand old elm." Like many historical myths, it was disseminated through popular culture and became accepted as fact.

The nurseries of Jack's time also perpetuated the myth of the tree's age. Jack quotes a contemporary nursery advertisement dating the Washington Elm to back before the 1630s, when Cambridge was first settled. But he skewers this sentimental story by referring to the tree ring measurements taken by the Cambridge Parks Department, which determined that the tree was 210 to 220 years old upon its death, and thus only about 70 years old in 1775. Though it would have been a mature tree at the start of the Revolution, there's no way it stretched back to the days of the first pilgrims.

The UW and the Elm

Though the Washington Elm is heavily burdened with myth and sentiment, we do know for a fact that the Arboretum's tree is a genetic relative of the one that was venerated on Cambridge Common. That's because our tree is linked to a specimen that grew for many decades on the campus of the University of Washington.

In 1896, Arthur John Collins—a University of Washington graduate studying at Harvard—became intrigued by the historic elm on Cambridge Common. He felt that it had special meaning to his home state and began attempting to grow saplings from cuttings of the then-still-living tree. He had been corresponding with UW Professor Edmond J. Meany about his project and in 1902 wrote, "I have succeeded in my fifth attempt and now have a true scion of the Washington Elm, which I am sending you this morning by express. I sincerely hope that this tree will reach you safely and will grow for the next 200 years within the sacred precincts of the University of Washington." Meany planted the scion near Lewis Hall, and students affectionately nicknamed the tree "George."

In 1937, shortly after the Arboretum was established, we accessioned our George Washington Elm. Records show it was a sapling

propagated from the UW Drug Garden (now the Medicinal Herb Garden), which indicates that it was grown from a cutting of George—itself a true cutting of the original Cambridge tree.

The Plot Thickens

There are a few more fascinating plot twists in the story—see if you can follow them. (I get confused myself sometimes!) In 1932, about 10 years after the original tree died, cuttings were propagated from the UW Washington Elm and sent to Cambridge to be planted on the Common near the site of original tree. Cuttings from the UW elm were also planted on the capitol grounds in both Washington, D.C. and Olympia, Washington.

Then, in 1963, lightning hit the UW campus tree, and it died. It was replaced by a sapling

grown from cuttings of the Cambridge Common tree—that is, the progeny of the UW tree, which in turn was the progeny of the original tree. The replacement tree was planted between Clark Hall and the Communications building on the campus.

Sadly, in 2016, the replacement elm had to be removed because its limbs split and the tree became a hazard. However, happily, the UW now plans to grow a new Washington Elm propagated from a cutting of the specimen in the Arboretum.

And that's the complicated story of how an old elm tree inspired so many people to track its descendants and preserve its legacy—all to commemorate the beginnings of America's independence.

Adapted from an article that appeared on the UW Botanic Gardens blog: https://botanicgardens.uw.edu/about/blog/.

Catherine Nelson is the UW Botanic Gardens tour program assistant and leads regular tours around Washington Park Arboretum.

LEFT: "Washington Taking Command of the American Army. At Cambridge, Mass. July 3rd, 1775," by Currier & Ives, 1876.
BELOW: The Washington elm at the Evergreen Washelli Memorial Park.

Other Washington Elms in the Region

By Walt Bubelis

Ulmus americana has intrigued me since my undergraduate days in the Midwest. Because the species was so easy to propagate—all you had to do was push a branch into the soil—it was pretty ubiquitous, and most towns and cities in the central and eastern part of the country had an "Elm Street." Streets lined with American elms had a cathedral-like quality due to the plant's tall, arching branches. But alas, I also got to witness some of these cathedrals crumble, as the stately species succumbed to the ravages of Dutch elm disease.

While getting my Master's degree in botany, I worked at the UW Botany Greenhouse under then manager Jim Nishitani. His family owned Oriental Gardens in what is now the Lake City area of Seattle. When I visited the nursery, Jim pointed out a large elm on the property that he said was also a Washington Elm (presumably a cutting from the UW campus tree). The nursery was retired in 1979, but the elm is still there, on Ravenna Ave N.E., just south of N.E. 98th Street.

Other George Washington Elms can be found in our area, most notably one on the grounds of Evergreen Washelli Memorial Park. Like the Arboretum's specimen, it is another descendant of the UW campus tree. In 2009, this tree was recognized by the City of Seattle's Heritage Trees program.

Apparently, there is a large Washington Elm in Bellingham (1621 Eldridge Avenue), but I haven't visited the tree, and I'm not sure about its origins. Email us at info@arboretumfoundation.org if you have any information about this or any other Washington Elm in the region.

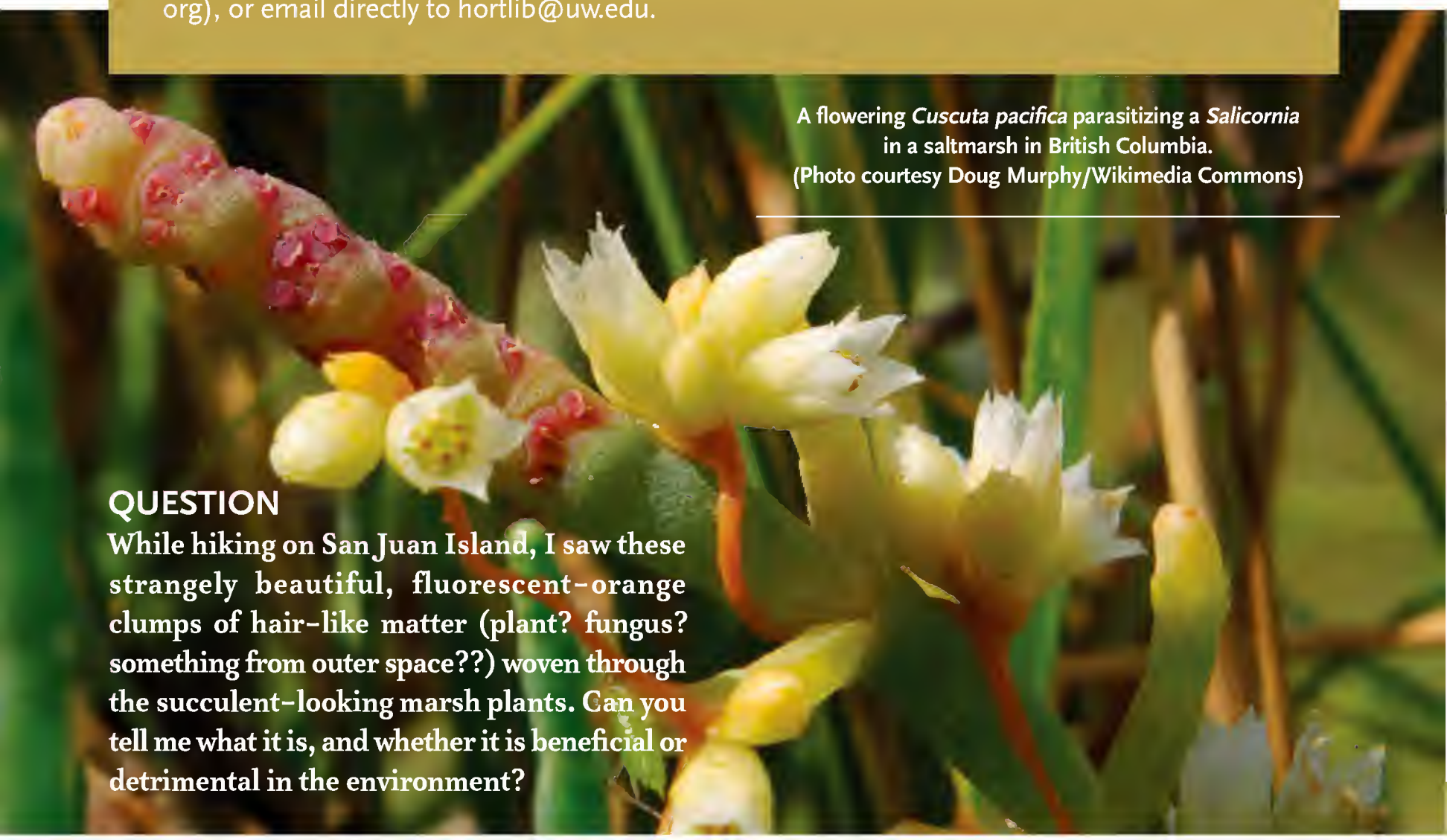
Walt Bubelis is a retired professor emeritus in the Horticulture Department at Edmonds Community College and a member of the "Bulletin" Editorial Board.

Q&A from the Miller Library's Plant Answer Line

Parasitic Plants: Foe or Friend?

By Rebecca Alexander

This regular column features Q&A selected and adapted from the Elisabeth C. Miller Library's Plant Answer Line program. If you'd like to ask a plant or gardening question of your own, please call (206) 897-5268 (UW Plant), send it via the library website (www.millerlibrary.org), or email directly to hortlib@uw.edu.



A flowering *Cuscuta pacifica* parasitizing a *Salicornia* in a saltmarsh in British Columbia. (Photo courtesy Doug Murphy/Wikimedia Commons)

QUESTION

While hiking on San Juan Island, I saw these strangely beautiful, fluorescent-orange clumps of hair-like matter (plant? fungus? something from outer space??) woven through the succulent-looking marsh plants. Can you tell me what it is, and whether it is beneficial or detrimental in the environment?

ANSWER

That weaving (or strangling!) habit you describe calls dodder to mind, and there is a native coastal salt marsh dodder in that area called *Cuscuta pacifica*. Dodder is related to morning glories (in the plant family Convolvulaceae). It is a genus of 100 to 170 rootless parasitic plant species with nearly no chlorophyll and barely any leaves, and most of them cannot photosynthesize on their own. Dodders sustain themselves by twining around the stems of other flowering plants, infiltrating their tissues with specialized suckers, and coiling around the plants repeatedly as they grow. Dodders also produce large numbers of seeds, each of which packs enough nutrition to keep a seedling alive until it grows long enough to do its counterclockwise twining and encircling.

Dodders can weaken their host plants, rendering them vulnerable to disease, and they can even spread disease from one plant to the next. The Washington State Noxious Weed Control Board lists the non-native *Cuscuta approximata* (smoothseed alfalfa dodder) as a Class C noxious weed, but this species is not found in the area where you were. It is mainly a problem in agricultural land east of the Cascades, where it can lower crop yields. Dodders have various unfriendly nicknames in farming country: devil's

guts, witches' shoelaces, wizard's net, hellbine and strangleweed, to list a few.

The way dodders find their food is remarkable: Studies have revealed that dodders can detect the volatile chemical compounds emitted by their preferred prey and move towards these plants. Experiments with the native *Cuscuta pentagona* (five-angled dodder) show that—given a choice between a tomato plant and a wheat stalk—the dodder will detect the beta-myrcene from the tomato and reach for its stem. This weakens the

tomato plant, which can potentially die as the dodder siphons off water and nutrients.

DEGREES OF PARASITIC BEHAVIOR

Parasitism takes different forms. Some parasitic plants (like dodders) attach to the stems of host plants, and some (like members of the broomrape family, Orobanchaceae) attach to the roots of their hosts. They all use modified roots called haustoria to penetrate their hosts and draw sustenance from them.

There are two main groups of parasitic plants. Holoparasites, or obligate parasites, are "obliged" by their lack of chlorophyll to seek it out elsewhere. Hemiparasites, or facultative parasites, have chlorophyll at some point in their life cycle and so are not entirely dependent on other organisms for food. Some dodder species fall somewhere in between these two categories.

ENEMIES WITH BENEFITS

Though parasites are usually bad news for the individual plants they attack, they can provide some benefits within the larger ecosystem. As flowering plants, many are valued by the bees, butterflies and hummingbirds that pollinate them. Some may also act as resources for herbivorous insects. For instance, the federally threatened golden paintbrush (*Castilleja levisecta*), a hemiparasitic plant, may have historically been an important host plant for the Taylor's checkerspot butterfly (*Euphydryas editha taylori*), a federally threatened pollinator native to our region. Scientists are exploring the possibility of uniting efforts to restore both species in the lowland prairies of the Puget Sound.

There is some evidence that parasites can increase diversity within a plant community by thinning out dominant host plants and making room for other species to take hold. This has implications for the field of restoration ecology. At a restoration project in the Czech Republic, for instance, researchers found that planting greater yellow-rattle (the hemiparasitic wildflower *Rhinanthus major*) was more effective at suppressing an invasive reed grass (*Calamogrostis*) species than repeated mowing. Similarly, in a grassland restoration project in England, researchers found that inoculating a site with little yellow rattle (*Rhinanthus minor*) led to higher overall plant species diversity.

New research in China shows that plant parasites may actually bolster the collective defense mechanisms of groups of infected host plants—protecting them from attack by insect herbivores. The scientists found that dodder can act as a biochemical bridge among host plants, enhancing interplant signaling. They write, "herbivore attack of one host plant elevates defensive metabolites in the other systemic *Cuscuta* bridge-connected hosts, resulting in enhanced resistance against insects."

GROWING PARASITIC PLANTS

It's best not to try to cultivate *Cuscuta*. Some dodder species are considered invasive, and the U.S. Department of Agriculture's plant health inspection service lists non-native species of *Cuscuta* and *Orobanche* as noxious weeds.

ABOVE: Golden paintbrush (*Castilleja levisecta*) with columbine and grasses on San Juan Island. (Photo by Ted Thomas/USFWS)

Cuscuta is on the quarantine list of "Seeds Not for Planting."

But not all parasitic plants are a threat, and in fact, some of them—like golden paintbrush—are threatened or endangered. Home gardeners can do a service to conservation by coming up with propagation strategies for common parasitic species that may be transferable to rare species.

If you're interested in growing parasitic plants in your home garden, there are some that might be good choices. Plant expert Linda Cochran has grown several different species of paintbrush (which usually associate with grass species): *Castilleja hispida*, *C. integra* (interplanted with *Stipa capillata*), and *C. miniata* (interplanted with *Stipa gigantea* and penstemon). Other experts I consulted recommend *Castilleja miniata* as one of the easier species to cultivate. Linda has also experimented with elephant's head (*Pedicularis groenlandica*) in the garden; good companions would be other plants that like the same conditions—damp and nearly boggy.

Rebecca Alexander is the manager of Reference and Technical Services at the Miller Library, located in the UW Botanic Gardens' Center for Urban Horticulture (3501 NE 41st Street, Seattle). She is also a contributing editor to the "Bulletin."

GALLERY OF PACIFIC NORTHWEST PARASITIC PLANTS

Once you begin discovering parasitic plants, you will likely notice they have a not-quite-plant-like, otherworldly appearance that sets them apart from the other 99 percent of the plant world. Following are profiles of some other parasitic plants besides *Cuscuta pacifica* that you may encounter in our local landscapes.

A TRIO OF HEMIPARASITES IN THE BROOMRAPE FAMILY

Many parasitic plants belong to the broomrape family (*Orobanchaceae*)—including *Castilleja*, *Orobanche* (which Dioscorides called "lykos," or wolf, because it consumes the food of its host), *Parentucellia viscosa* (yellow glandweed, common in the Union Bay Natural Area), *Rhinanthus minor*, and more. All of these parasites tap into the root systems of their host plants. They produce prolific amounts of seed, but the seeds only germinate when triggered by particular substances produced by the host plants' roots.

Castilleja levisecta (golden paintbrush) is a critically imperiled native plant found in low elevation meadows and prairies (which are themselves becoming rarer!) in our area. It flowers between April and September. The rare Taylor's checkerspot butterfly depends on this species of *Castilleja*, and other plants in the Orobanchaceae, as a place to lay its eggs and nourish them once hatched. It may be found in association with *Carex tumulicola* (foothill sedge), *Festuca rubra* and *F. roemeri*, *Trifolium dubium*, *Vicia* species, and more.

Pedicularis groenlandica (elephant's head) is a midsummer-flowering denizen of lake and stream banks, bogs and fens. One of its preferred host plants is *Carex nigricans*, black alpine sedge. It may also be found in the company

of *Deschampsia cespitosa*, *Dodecatheon jeffreyi*, and others. It derives its colorful common name from the distinctly elephantine appearance of its pink flowers. Plant expert Linda Cochran (who lives on the Olympic Peninsula) describes them on her blog: "No one forgets pink elephants. They are common along streams and boggy mountain meadows, sometimes numbering in the thousands. Red, fern-like leaves appear first and dark stems follow. The green of chlorophyll eventually masks most of the red. Plants bloom for many weeks, making this one of the most widely known—and gasped at—wildflowers. Even the dried seed heads continue to show the elephant's trunk."

Rhinanthus minor (lesser yellow rattle) is a flowering annual native to the Pacific Northwest, but it has a very wide range. It also grows in Britain's ancient hay meadows, where its common name originates. The plant's papery fruit capsules were once used as toy rattles to entertain children. By attaching itself to the dominant grasses in the meadows and prairies, *Rhinanthus* diminishes their vigor, thereby giving other flowering plants more room to thrive. In this way, it contributes to biodiversity.

A DUO OF EPIPARASITIC MYCOTROPHS IN THE HEATH FAMILY

Parasitism is a complicated business. Sometimes parasites feed on other parasites—a phenomenon called epiparasitism. For instance, mistletoes occasionally attack other mistletoes that are feeding on a host tree. Mycotrophy is a special form of epiparasitism in which a parasite feeds indirectly on a host plant by connecting to it through its mycorrhizae—the fungi that grow in association with the roots of many plant species.

Monotropa uniflora (Indian pipe, ghost pipe) appears from June through August, rising up in the forest like a ghostly periscope from the underworld. A herbaceous perennial, it draws nutrients from mycorrhizal fungi and is pollinated by long-tongued bees. In our state, it's mainly found west of the Cascades in association with Douglas fir. According to the Washington Native Plant Society, ghost pipe grows in the humus of shaded forests at low- to mid-elevation.

Pterospora andromedea (woodland pinedrops), like *Monotropa*, has urn-shaped flowers that appeal to long-tongued bees. It is strikingly tall, with ruby-colored stalks sometimes over a meter high. It is common across Washington, making its appearance in coniferous forests in summer—especially in association with Ponderosa pine. ~

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TOP LEFT: *Monotropa uniflora* (photo by Sage Ross)
TOP RIGHT: *Pedicularis groenlandica* (photo by Walter Siegmund)
BOTTOM LEFT: *Pterospora andromedea* (photo by Thayne Tuason)
BOTTOM CENTER: *Rhinanthus minor* (photo by US Fish and Wildlife)
BOTTOM RIGHT: *Castilleja levisecta* (courtesy Wikimedia Commons).

Women Gardeners and Botanical Artists

By Brian R. Thompson

In 1827, a novel entitled "The Mummy!" was published anonymously in London. The plot included the reawakening of an Egyptian mummy in the year 2126—hence the title. However, the characters were mostly vehicles for wide-ranging observations of a utopian society the author expected to evolve by that time.

The book came to the attention of John Loudon (1783–1843), who was the editor of the "Gardener's Magazine" and well known for his "An Encyclopaedia of Gardening." His specific interest was the novel's portrayal of technology in the 22nd century, including steam-powered plows, and it led him to arrange a meeting with the author.

A plate from Jane Loudon's "The Ladies' Flower Garden of Ornamental Annuals" (1844).

Why am I discussing this book—which the Miller Library does not own—in this column? Because it was written by 20-year-old Jane Webb (1807–1858). John was surprised to learn that the author of this horror fiction was not a man. However, it was clearly a happy meeting: He and Jane soon married and became a powerful writing and editing team for horticulture in the 1830s and 1840s.

Jane Webb Loudon knew nothing of horticulture when she married John, but she quickly learned. She also recognized that the existing literature on horticulture was primarily for a male readership. With her husband's support, she began publishing books intended for women. Bea Howe captures much of her story in "Lady with Green Fingers," especially the practical nature of her advice for both garden culture and design, and her "fresh and entirely unsentimental approach to flowers and plants."

Webb Loudon's most significant work was "The Ladies' Flower Garden," a multi-volume set with each volume focused on a particular type of plant. The Miller Library has the first volume in this series, which was devoted to annuals. While this book is in the Library's Rare Book Room and only available to view by appointment, many of the illustrations appear in "Garden Flowers from Plates by Jane Loudon"—a 1948 book in the general collection, authored by Robert Gathorne-Hardy. These illustrations were noteworthy for the time because they included many different species on the same plate, set in loose arrangements that show contrasting features while maintaining scientific accuracy. The illustrations were also a big selling point for "The Ladies' Flower Room" because, at the time, they were expensive to produce—and Loudon was able to show a great number of species in a single book.

More biographical information about John Loudon and Jane Webb Loudon is found in "The Loudons and the Gardening Press" by Sarah

Dewis. Here you learn that their work was a family affair, as two of John's sisters and other family members created many of the illustrations. These artists include H. Noel Humphreys (1810–1879), who drew the images for the volume on annuals.

20th Century Plantswoman

Frances Perry (1907–1993) perceived a similar lack of horticultural information for women more than a century after Jane Webb Loudon. As a horticultural lecturer, horticultural advisor (to her county council), and gardening correspondent in England, she noted an ongoing demographic change: More and more women were attending her presentations or writing her letters. Her colleagues, both men and women, had also observed this change.

To address this need, she published "The Woman Gardener" (1955). In addition to offering general gardening advice, Perry included topics she thought would have special interest for women. For example, an early chapter is titled "Salads and Quick Return Vegetables" and recognizes that "most housewives will agree that the first requirement of any salad ingredient is that it should be fresh." Later chapters present miniature gardens in various forms, houseplants, and tips on flower arranging and keeping cut flowers fresh—subjects not typically addressed in other general gardening books of the time. She broke down other barriers of the male hierarchy of British horticulture by becoming the first woman council member of the Royal Horticultural Society in 1968 and, a decade later, vice president of that organization.

Perry is best known for her mastery and promotion of water gardening, beginning with her publication in 1938 of "Water Gardening." While first learning about the topic, she wrote in her preface "the dearth of literature upon the subject was the cause of much disappointment. There was no one volume devoted entirely to aquatics that contained all the plants that I wanted to know about." She did much to remedy this deficiency throughout her long career, writing about the topic into the 1980s.

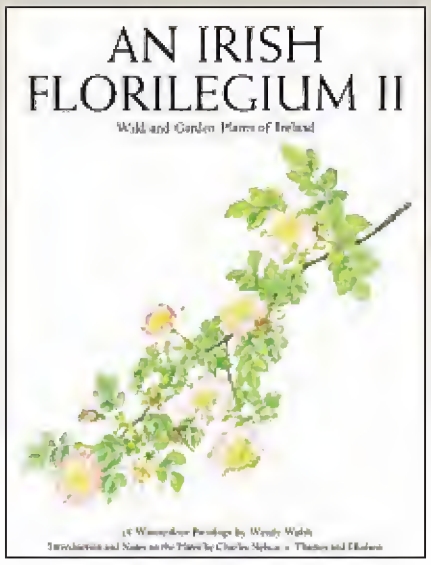
Brent Elliott, retired librarian and historian of the Royal Horticultural Society, praised Perry for her innovation and the total sum of her publications in his account of her life in the September 2018 issue of "The Plantsman." He observed that she was a rare visitor to the RHS Library because she had developed her own excellent private library. He also declared that her writing showed "evidence of reading both broader and deeper than that of most garden writers of the time."

An example of this historical awareness is her book "Beautiful Leaved Plants." In it, Perry describes 64 house and conservatory plants, popular in the mid-20th century, but chose to illustrate her selections with images by Benjamin Fawcett (1808–1893). Fawcett was a botanical illustrator who used wood engravings, an unusual technique for the time that is particularly effective in capturing the brilliance and subtlety of foliage.

Irish Botanical Artist

Women botanical artists have made many contributions to horticulture and botany. One of these was Wendy Walsh (1915–2014). English by birth, she also lived in Japan and the United States before settling in Ireland in 1958 at the age of 43. She lived and worked there the rest of her long life, providing illustrations for 33 books, many on Irish gardening and native plants.

Her masterpieces were "An Irish Florilegium," published in 1983, followed by "An Irish Florilegium II" in 1987. Each contains beautifully printed copies of 48 watercolor paintings that she drew from nature. Roughly a third of these plants are native to Ireland, while another



third were introduced by an Irish botanist or plant collector. The rest celebrate cultivars developed by the many fine nurseries and plant hybridizers of that nation.

E. Charles Nelson, a taxonomist with the National Botanic Gardens Glasnevin in Dublin, wrote the extensive plant notes to both volumes and the introduction to the second. Although he was 36 years younger, he and Walsh became fast friends after meeting at the beginning of this project. Their collaboration led to several more books, including three in the Miller Library.

One of these is "Hardy Heathers from the Northern Hemisphere," published by the Royal Botanic Garden, Kew in 2011. It is already the standard reference for European species and cultivars of *Calluna*, *Daboecia* and *Erica*. Nelson wrote this book and used images by a number of contemporary and historical artists that were depicted in several media, including photography. For me, the watercolors of species by Walsh, sometimes accompanied by a sketch of the related ecosystem in the background, stand out for their naturalness—even more so than some of the photographs.

Nelson wrote a remembrance to Walsh in the Summer 2016 issue of "Hortus." He described her as a "frugal artist," meaning she kept considerable white space to highlight her subjects. She was particularly keen on painting white or near-white flowers or the subtleties of tree leaves in varying shades of green. "I sometimes think of Wendy as an alchemist, transforming intangible light into a permanent work of art. She could capture with her eyes the rays of light reflected by, or transmitted through, a petal or a leaf, and possessed the inexhaustible patience to transfer those rays through her hands, a brush, and some watercolour paints, to a piece of vellum or sheet of paper."

American-Australian Collaboration

Ellis Rowan (1848–1922) was an Australian painter who specialized in the wildflowers of that country at a time when the native flora was not well known by European settlers. She did not train as a botanist, which made her work of limited use in that field. However, the exuberance and abundance of her paintings (at least 3000 survive) made her very popular. She typically combined flowers with leaves and stems into bouquets and worked quickly, painting in watercolors and gouache without initial pencil underlay.

In "Flower Paintings of Ellis Rowan," Helen Hewson wrote that her images "evoke the particular quality of the beauty of the Australian bush, a beauty which is vivid, yet also elusive and vulnerable." Hewson notes the limitations of Rowan's work for botanists but recognizes that "her work is so accurate that the specialist can identify a large proportion of the subjects with considerable reliability."

"Flame Azalea," by Ellis Rowan, from "Southern Wild Flowers and Trees" (1901).

Rowan was also a fearless traveler—even in her later years—visiting Europe, the United States, New Zealand and New Guinea. It was on a visit to the U.S. that Alice Lounsberry (1873–1949) of Boston, some 25 years younger, introduced herself to Rowan. Lounsberry convinced Rowan to travel with her for two years, providing illustrations for three books she wrote on native plants: "A Guide to the Wild Flowers" (1899), "A Guide to Trees" (1900), and "Southern Wild Flowers and Trees" (1901).

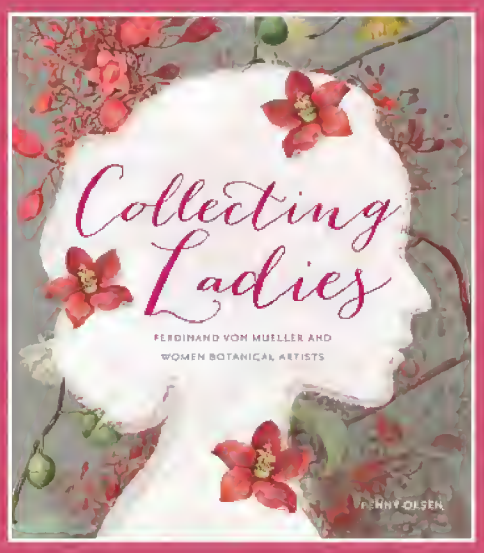
At the turn of the 20th century, it was an adventure—especially for two women—to be exploring the rural parts of the Southeast. In

"Southern Wild Flower and Trees," Lounsberry writes "Mrs. Rowan and I travelled in many parts of the south, exercising always our best blandishments to get the people of the section to talk with us. Through the mountainous region we drove from cabin to cabin, and nowhere could we have met with greater kindness and hospitality." The illustrations include plates in color, many black and white diagrams, and some delightful vignettes, typically showing native plants in the context of a larger landscape.

They were a good team. Lounsberry provided detailed botanic structure, along with engaging observations of her subjects and their natural history, while Rowan's artwork found a new audience. Together, their books were very popular.

Women of Flowers

Jack Kramer is a prolific American author on many gardening topics, and we have 25 of his books in the Miller Library. His wide range includes many single plant profiles (orchids are a favorite), histories, and the designing and building of gardens in various styles. My favorite of his books is "Women of Flowers: A Tribute to Victorian Women Illustrators" (1996). Others agree: It won the Garden Writers Association of America Award of Excellence for Best Book in 1996.



Kramer primarily profiles British illustrators. For an antipodal viewpoint, consider "Collecting Ladies: Ferdinand von Mueller and Women Botanical Artists," by Penny Olson (2013). The subjects in this book are Australian women, many of whom were encouraged in their botanical pursuits by Mueller, a leading botanist of the Australia colonies in the mid-to-late 1800s. The women "benefited from the milieu that Mueller helped to create so effectively in Australia, where most botanical roads led to him."

Brian R. Thompson is the manager and curator of the Elisabeth C. Miller Library of the University of Washington Botanic Gardens. He is also a member of the "Bulletin" Editorial Board.

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